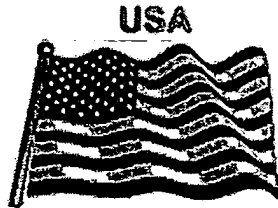


# Appendix A

# MIDWEST INDUSTRIAL PACKAGING

1940 USG Drive \* Libertyville, IL 60048



## STEEL SEALS, POLY SEALS, AND EDGE PROTECTOR SPECIFICATIONS

Midwest Industrial Packaging, Inc.

### Steel Seal Specifications:

Seal Name	Seal Type	Heavy Duty or Regular Duty	Required Strap	Number of Notches Applied to Each Side	MIP Sealers Recommended	Seal Width (inch)	Seal Length (inch)	Seal Thickness	Packaging	Approx Shipping per C	
										lb	
S38SO2	Snap-on Open Type	RD	Regular Duty Steel Strapping	Double Notch	MIP-1100-38	3/8	1	.017	2500/5000 per case	13/26	5
S12SO2	Snap-on Open Type	RD	Regular Duty Steel Strapping	Double Notch	MIP-1100-12	1/2	1	.02	2500/5000 per case	15/30	6
S58SO2	Snap-on Open Type	RD	Regular Duty Steel Strapping	Double Notch	MIP-1100-58	5/8	1	.02	2500/5000 per case	21/42	9
S34SO2	Snap-on Open Type	RD	Regular Duty Steel Strapping	Double Notch	MIP-1100-34	3/4	1	.02	2500/5000 per case	22/44	9
S34SO3	Snap-on Semi-Open Type	HD	Heavy Duty or High Tensile Steel Strapping	Double Notch	MIP-1152-34 MIP-3000-34 MIP-3100-34	3/4	1-3/4	.031	1000 per case	29	
S114SO3	Snap-on Semi-Open Type	HD	Heavy Duty or High Tensile Steel Strapping	Double Notch	MIP-3000-114 MIP-3100-114	1-1/4	2-1/4	.031	1000 per case	52	
S38PO2	Push-on Fully Closed	RD	Regular Duty Steel Strapping	Single Notch	MIP-1120-38	3/8	7/8	.025	2500 per case	17	
S12PO2	Push-on Fully Closed	RD	Regular Duty or High Tensile Steel Strapping	Single Notch	MIP-1120-12	1/2	7/8	.025	2500 per case	22	
S58PO2	Push-on Fully Closed	RD	Regular Duty or High Tensile Steel Strapping	Single Notch	MIP-1120-58	5/8	7/8	.025	2500 per case	27	

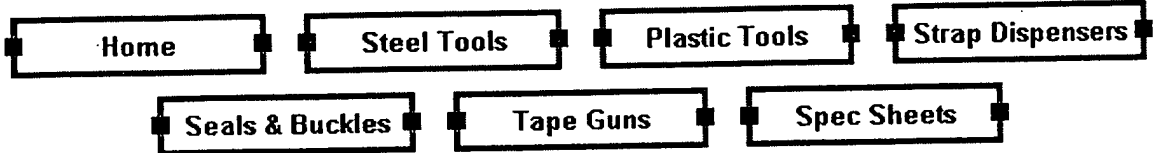
	Closed		Steel Strapping	Notch					case	
S34P02	Push-on Fully Closed	RD	Regular Duty or High Tensile Steel Strapping	Single Notch	MIP-1120-34	3/4	7/8	.025	2500 per case	35
S34P03	Push-on Fully Closed	HD	High Tensile Steel Strapping	Double Notch	MIP-1152-34 MIP-3000-34 MIP-3100-34	3/4	2	.035	1000 per case	41
S114P03	Push-on Fully Closed	HD	High Tensile Steel Strapping	Double Notch	MIP-3000-114 MIP-3100-114	1-1/4	2-1/4	.035	1000 per case	63

## Poly Seal Specifications:

Seal Name	Seal Type	Heavy Duty or Regular Duty	Required Strap	Joint Applied	MIP Sealers Recommended	Seal Width (inch)	Seal Length (inch)	Seal Thickness	Packaging	Approx Shipp per lb
P12SO2	Snap-on Semi-Open Type	RD	Polypropylene	Crimp	MIP-100-12 MIP-120 MIP-400-12	1/2	1-1/4	.022	1000 per case	10
P58SO2	Snap-on Semi-Open Type	RD	Polypropylene	Crimp	MIP-100-58 MIP-120 MIP-400-58	5/8	1-1/4	.022	1000 per case	13
P12SO3	Snap-on Semi-Open Type Serrated	HD	Polyester	Crimp	MIP-420-12	1/2	1-3/16	.035	1000 per case	12
P58SO3	Snap-on Semi-Open Type Serrated	HD	Polyester	Crimp	MIP-420-58	5/8	1-3/16	.035	1000 per case	20
P12SO4	Snap-on Semi-Open Type "M" Series	HD	Polyester	Crimp	MIP-450-12	1/2	2	.04	1000 per case	28
P58SO4	Snap-on Semi-Open Type "M" Series	HD	Polyester	Crimp	MIP-450-58	5/8	2	.04	1000 per case	44
P12WB2	Wire Buckles	RD	Polypropylene	N/A	N/A	N/A	N/A	.096	1000 per case	13
P12WB3	Wire Buckles	HD	Polypropylene	N/A	N/A	N/A	N/A	.126	1000 per case	18
P12PB2	Plastic Buckles	RD	Polypropylene	N/A	N/A	N/A	N/A	N/A	1000 per case	5

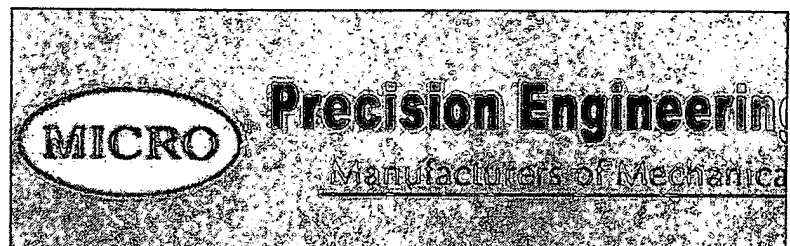
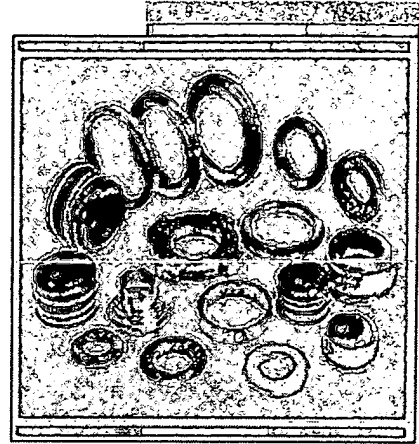
**Edge Protector Specifications:**

Corner Protector Model	Description	Width (inch)	Length of Each Leg (inch)	Overall Length (inch)	Strap Range (inch)	Steel or Poly Strap	Packaging	Approximate Shipping Weight per Case		Box Dimensions (inch)
								lb	kg	
PCP-114	Plastic Edge Protector	2-1/2RD	1-3/4	3-1/2	3/8 to 1-1/4	Steel/Poly	1000 per case	25	11.25	18 x 15 x 13



Since 1993, our company has been following a mission of providing customized range of mechanical seals.

We believe in offering our customers efficient solutions for their diverse needs. We are always ready for constant improvement and innovation of mechanically engineered seals to meet the demand of market. We, at Precision Engineering Works, meet the present and future needs of customers with the highest possible standards of value, quality & service.



We are proud to introduce ourselves as one of the lead engaged in manufacturing of all types of mechanical seals, pumps, chemical pumps, boiler and marine engineering machines.

Open Type Mechanical Seals  
Close Type Mechanical Seals

DRL Type Mechanical Seals

RC Type Mechanical Seals

Burkman Model Mechanical Seal

Fenner Model Mechanical Seal

## About Us

We, Precision Engineering Works, are professionally organized firm, engaged in the manufacturing of various types of seals. These are widely used for water pumps, chemical pumps, boiler and marine engineering machines.

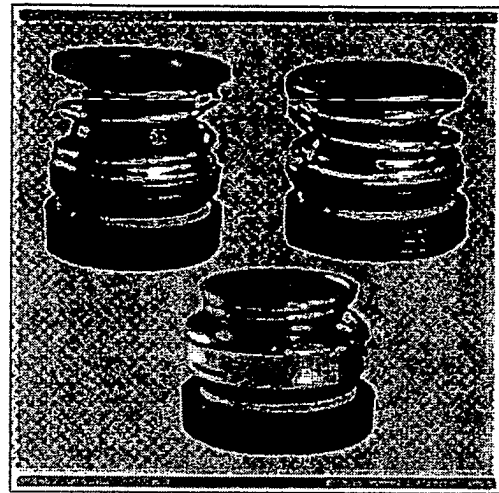
Scaling new benchmarks in industrial good industry, the foundation stone of our company was laid in the year 1993, by Mr. Duraiyappa. He has 20 years experience in the field of manufacturing mechanical seals and 10 years of experience in tool room in leading manufacturing units

Admired beyond the geographical boundaries, our designed components are widely used in industries like Chemicals, Pharmaceuticals, Fertilizers, Paper and Pulp Industry, Textiles, Thermal Power Plants etc. We are one of the few names in this industry where we work closely with our customers to develop best innovative products that may withstand adverse climatic conditions.

## We Offer

Our loyalty towards advancement of technology is reflected in our development of customized products and flawless operations.

Since our inception, we have left no stone unturned to make our products unique in the market. Our wide precision engineered product range includes:



### Open Type Mechanical Seals

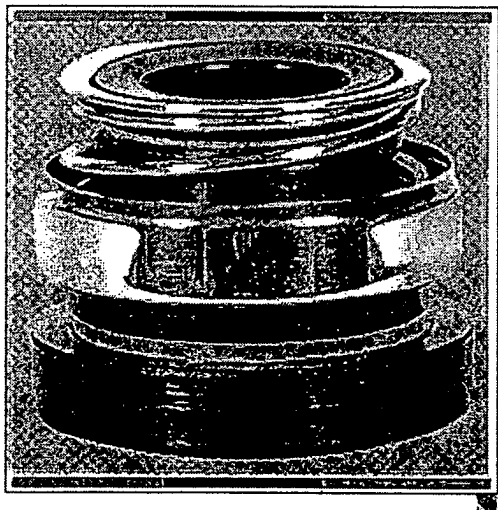
We are proud to state that we are one of the few names to offer open type mechanical seals at competitive prices. These seals are more economical and beneficial than soft packing.

Our mechanical seals are widely in demand to seal hazardous and difficult to handle fluids like acids, strong alkalies and fluids at higher pressure and temperature. It also works as a containment device that keeps the product from leaking out, also it restricts contaminants from entering into the product.

- Our Seals are highly resistant against Heat, Wear, Chemical Abrasion and Erosion.
- Machined Carbon and Dry Running Proof



[Request for Quotation](#)



### DRL Type Mechanical Seals


Justifying our position, as one of the leading names to manufacture quality products, we also offer DRL type mechanical seals. Designed as per international quality standards, these seals have the following specifications:

- **Models:** DRL8, DRL10, DRL12, DRL14, DRL16(054), DRL16 (Standard), DRL18.5, DRL19, DRL25, DRL28 & DRL32
- **Sizes:** 8mm to 32mm
- **Temperature:** 50°C to 200°C
- **Pressure:** upto 100 pounds/square inch
- **Shaft Speed:** upto 15000 fpm

These seals are widely used in water pumps, chemical pumps, steam boilers and marine products.

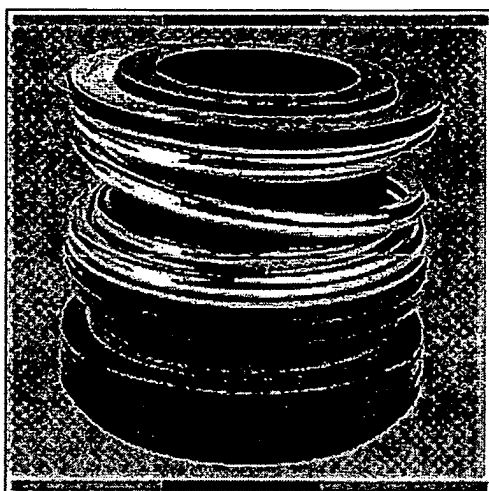
No	Part Name	Material
1	Cup Gasket	Nitrile Butadiene Rubber
2	Mating Ring	Ceramic
3	Seal Ring	Carbon
4	Rubber Bellows	Nitrile Butadiene Rubber
5	Spring Holder	Stainless Steel
6	Coil Spring	Stainless Steel

No	Type	Shaft Size (mm)	Length of Seal (mm)	Outer Diameter of Seal (mm)
1	DRL8	8	20.50	20.00
2	DRL10	10	23.00	25.70
3	DRL12	12	23.50	25.70
4	DRL14	14	25.50	30.00
5	DRL16 (Std)	16	27.50	32.00
6	DRL16 (054)	16	25.50	30.00
7	DRL18.5	18.50	29.00	37.00

 **Request for Quotation**

#### RC Type Mechanical Seals

- Engineered with modern technology,
- We also offer RC-type mechanical seals available in various model numbers like: RC12, RC16, RC18, RC18.5, RC19, RC22, RC25, RC28, RC30, RC32, RC35 & RC52



- Easy to use and install
- Designed with great care, these seals are highly resistant against heat, abrasion and erosion

#### Material Construction


Part Name	Material
Cup Gasket	Nitrile Butadiene Rubber
Stationary Face	Ceramic
Seal Face	Carbon
Washer	Stainless Steel
Rubber Bellows	Nitrile Butadiene Rubber
Coil Spring	Stainless Steel
Outer Shell	Stainless Steel
Drive Ring	Nitrile Butadiene Rubber

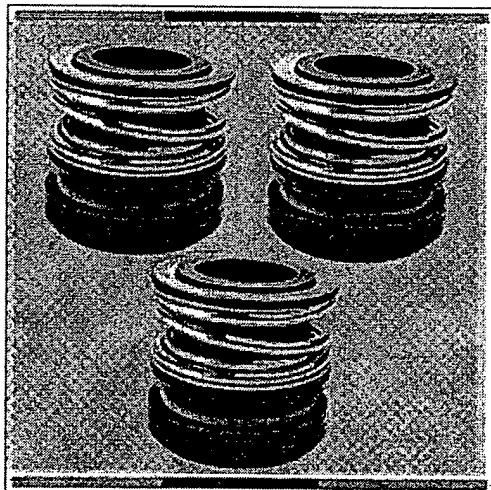
Special Material	Size(mm)	Speciality
Vilton	16,19,22&25	Resistance to hydrocarbon Fuels, Acids and Dampness up to 150°C
Tungsten-Carbide	19,25&32	Resistance to slurry, Turbid Water, Heat, Abrasion and Alkalies



**Size**

RC (Open Type)	Shaft Size (mm)	Length of Seal (mm)	Outer Diameter of Seal (mm)
RC16 (Std)	16	32.00	32.00
RC16	16	28.50	30.00
RC19 (S)	19	32.50	35.00
RC19 (T)	19	32.50	37.00
RC25	25	35.00	41.50

 **Request for Quotation**




**Close Type Mechanical Seals**

We are also proud to state that we are one of the few names to offer premium Closed Type Mechanical Seals. These seals are widely used in various hydraulic machines and can be custom availed as per customers specifications.

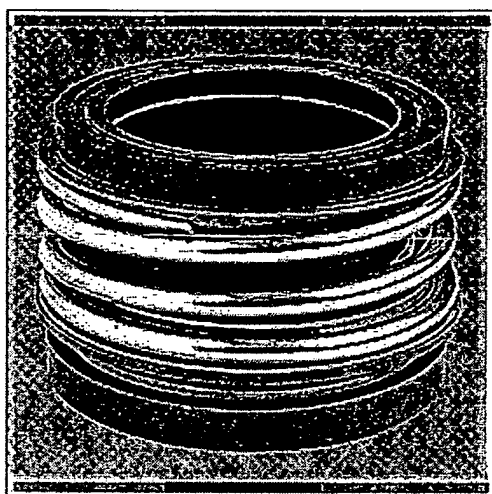
These seals can be provided with single, double or tandem arrangement with external seal support systems & devices. It is also to be noted that these seals can be customized as per clients needs.

- Our Seals are highly resistant against Heat, Wear, Chemical Abrasion and Erosion.
- Machined Carbon and Dry Running Proof

 **Request for Quotation**

**Burkman Model Mechanical Seal**

With an aspire to go beyond the expectation of our customer in terms of quality, we also manufacture Burkman Model Mechanical



Seal. Compact and robust in nature, these seals are widely used in water pumps, chemical pumps, steam boilers and marine products. Featured with high efficiency, they have following specifications:

**Applications:**

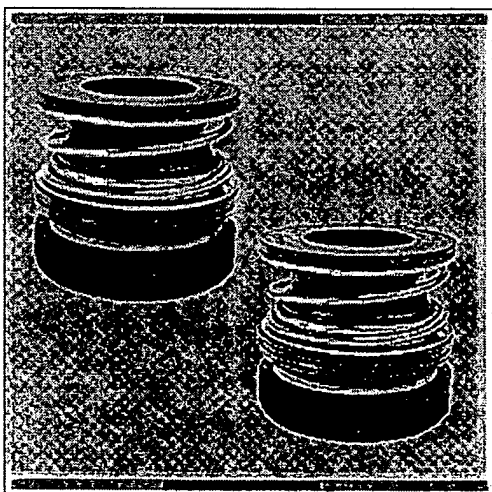
- **Sizes:** 35 mm & 52 mm
- **Temperature:** 200°C to 350°C
- **Pressure:** Up to 100 pounds/square inch
- **Used in:** Water Pumps, Chemical Pumps, Steam Boilers and Marine Products.

**Size:**

No	Type	Shaft Size (mm)	Length of Seal (mm)	Outer Diameter of Seal (mm)
1	BG35	35	40.00	50.00
2	BG52	52	51.00	73.00

- Our Seals are highly resistant against Heat, Wear, Chemical Abrasion and Erosion.
- Machined Carbon and Dry Running Proof

 [Request for Quotation](#)



**Fenner Model Mechanical Seal**

We are also one of the few names to offer Fenner Model Mechanical Seals. These seals provide good sealing functions.

We provide the facility to custom manufacture them as per the specifications of our clients. They are widely used in Water Pumps, Chemical Pumps and Steam Boilers. Featured with high efficiency, they have following specifications:

- **Sizes:** 12 mm to 25 mm

**Applications:**

- **Temperature:** 73°C to 200°C
- **Pressure:** Upto 100 pounds/square

inch

- **Shaft Speed:** Upto 1500 fpm
- **Used in:** Water Pumps, Chemical Pumps, Steam Boilers and Marine Products

#### Size

No	Type	Shaft Size (mm)	Length of Seal (mm)	Outer Diameter of Seal (mm)
1	F12	12	30.00	25.70
2	F16	16	35.00	32.00
3	F19	19	44.00	35.00

#### Material Construction

Part Name	Material
Cup Gasket	Nitrile Butadiene Rubber
Stationary Face	Ceramic
Seal Face	Carbon
Washer	Stainless Steel
Rubber Bellows	Nitrile Butadiene Rubber
Coil Spring	Stainless Steel
Outer Shell	Stainless Steel
Drive Ring	Nitrile Butadiene Rubber

- Our Seals are highly resistant against Heat, Wear, Chemical Abrasion and Erosion.
- Machined Carbon and Dry Running Proof



We believe in making long lasting relationship with our clients and constantly take efforts to maintain the quality of our products. We conduct constant research activities and further ensure that our designed products comply to international quality norms.

Backed by a team of talented technical engineers, we also offer after-sale services to all our clients and endeavor to achieve 100% customer satisfaction. Within a short span of our inception, today we have gained a great deal of knowledge about our service and expanded our capabilities to provide a variety of premium quality products.

## **Our Designing Section**

Empowered with experienced designers, we are one of the leading names in this industry to have our own in-house designing unit. At our designing section, we make the best use of CAD/CAM basic software to design the layout of various types of mechanical seals that we offer.

At each designing procedure, we make sure that each of our products adheres to the international quality guidelines. Our designers also analyze the various physical properties of the seals in order to avoid any modification at later stage.

## **Our Production Section**

The growing demand for cost-effective product has been the driving force for us and to meet this objective we have developed best production unit. Equipped with sophisticated technology, our production unit is installed with modernized production machines. Some of the most important machines that are installed at our production unit are:

- Power Press Machine
- Hand Press Machine
- Shearing Machine
- Lathe Machine
- Drilling Machine
- Lapping Machine

**In addition to this, we also have our own tool room facility.**

## **Our Quality Assurance**

It is quality and utility of product that make us stand ahead of competition. We have an in-house quality assurance team, which periodically conducts a series of quality checks on all our products. Committed towards total customer satisfaction, we procure

premium and defect-free raw materials like:

- Sheet Metal SS304 Grade
- Springs - SS304 Grade
- Sintered Carbon
- Moulded Carbon and High Alumina Ceramic from leading vendors.

Equipped with superior quality testing equipment, like Light Band to check lapping surface finish, Tensile Load Tester to check load testing, we ensure only defect-free product reaches our clients' door. Through our perfect implementation of hazard analysis and critical control program we endeavor to optimize our products' efficiency and durability.

## **Our USP**

- Equipped with the latest and sophisticated machines to meet bulk production requirement.
- Capable enough to customize our products as per customers' needs.
- Facilitated with voluminous production and storage capacity.
- Empowered with wide market distribution network & efficient transport facility.
- Committed to offer prompt delivery of products and after sale services.

## **Our Patrons**

Our commitment towards offering quality products has enabled us to achieve preferred name with wide number of competitors in the market. With our ability to give all our clients equal importance, we have endeared ourselves to the customers spread all across the nations.

Today, we have placed ourselves much ahead of our competitors and our products are well appreciated at international platform.

## **Send Online Query or Contact Us**

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Close Type Mechanical Seals

Burkman Model Mechanical  
Seal

Fenner Model Mechanical  
Seal

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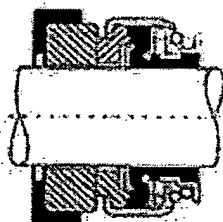
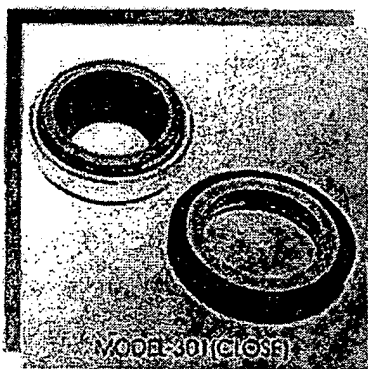
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**From Protection  
....to Perfection**

**Close Type Seal, Store Type Seal, Stork Type Seal, Open Type Seal, Robin Type S  
Products**

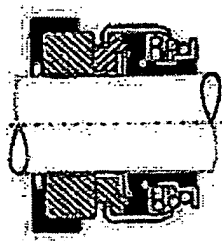
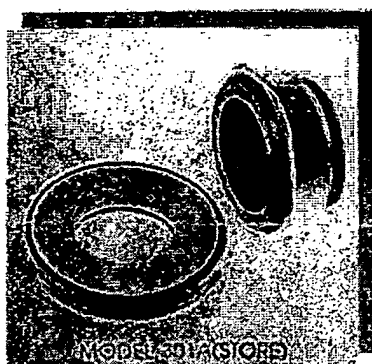
**Model -301 (CLOSE)**



Major of water pumps and  
circulation pumps.  
**Sizes Available in 15mm to 30mm**  
**Applications**  
Temperature : 20° - 100° C  
Pressure : 0.6 MPa  
Speed : 10 m/sec

No.	Part Name	Material

**Model -301 A (STORE)**



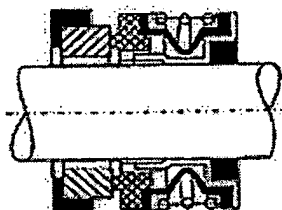
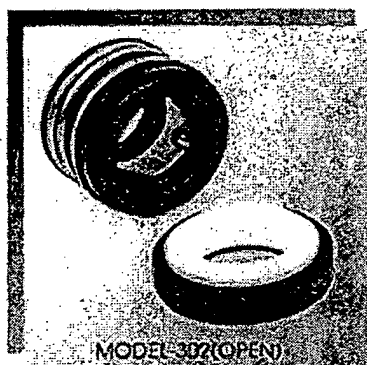
Major for water pumps and circulation pumps  
 Sizes available in 10 mm to 32 mm

**Applications**

Temperature : 20° - 100° C  
 Pressure : 0.6 MPa  
 Speed : 10 m/sec

No.	Part Name	Material

**Model -302 (OPEN)**



Major for Auto Cooling Pumps, Centrifugal Pumps, Submersible pumps, Industrial Pumps  
 Sizes available in 12 mm to 45 mm

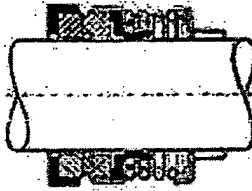
**Applications**

Temperature : 20° - 100° C  
 Pressure : 0.5 MPa  
 Speed : 5 m/sec

No.	Part Name	Material

**Model -303 (ROBIN)**





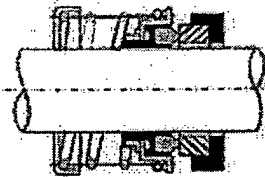
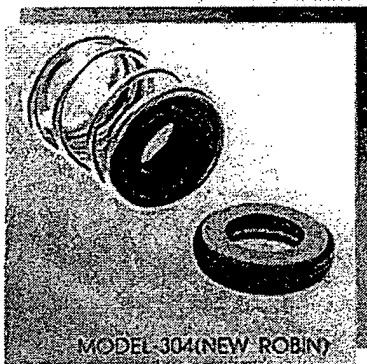
Major for Auto Cooling Pumps,  
Centrifugal Pumps, Submersible  
pumps, Industrial Pumps  
Sizes available in 12 mm to 45 mm

**Applications**

Temperature : 20° - 100° C  
Pressure : 0.8 MPa  
Speed : 10 m/sec

No.	Part Name	Material

**Model - 303 (NEW ROBIN)**



Major for general industrial pumps,  
submersible pumps  
Sizes available in 12,15,16 mm

**Applications**

Temperature : 20° - 100° C  
Pressure : 0.7 MPa  
Speed : 05 m/sec

No.	Part Name	Material